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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,840	07/23/2003	Yoshihisa Suda	009682-126	6579

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BUCHANAN, INGERSOLL & ROONEY PC
POST OFFICE BOX 1404
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EXAMINER	
MAPLES, JOHN S	

ART UNIT	PAPER NUMBER
1795	

NOTIFICATION DATE	DELIVERY MODE
02/07/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com
debra.hawkins@bipc.com

Office Action Summary	Application No.	Applicant(s)	
	10/624,840	SUDA ET AL.	
	Examiner	Art Unit	
	John S. Maples	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 21-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-2001-093551 ('551) in view of Yamada et al.-US 5,432,023. (Yamada) (New Rejection)

Reference is made to the machine translation of '551 reference including all of the drawing figures which teach a direct methanol fuel cell system including a plurality of fuel cells 2 that are connected to a fuel reservoir 1. It is noted that in Figure 6 and described in paragraphs 25 and 26 a liquid fuel osmosis material 8 is set forth within the reservoir 1, which material is inherently porous. The reservoir may be a replaceable cartridge and may include valve element 23-see paragraph 41 and Figure 12. A fuel feeder 3 moves the fuel from the reservoir to the fuel cells and includes infiltration

structure, the same which is an occluding element formed of a porous material-see paragraph 12. In view of '551 using capillary action to move the fuel to the fuel cells, the ratios set forth in claims 26 and 33 are inherently met. Though not specifically stated in '551, spent fuel is directed to a space-see paragraph 77, where it would have been obvious to have used a reservoir to collect spent fuel and recycle or use the same since the same would increase the efficiency of the fuel cell system.

The '551 reference does not teach the microporous carbon material of the fuel electrode nor the configuration of each of the fuel cells. Yamada teaches a direct methanol fuel cell-see column 1, lines 26-48 and describes the fuel cell configuration in Figure 44 and in column 42, line 20-49 where a fuel electrode has an electrolyte layer formed thereon which latter layer has an air electrode layer formed thereon. The fuel electrode of '551 is composed of a microporous carbon particulate material-see column 15, lines 12-23; column 19, lines 37-60; column 29, lines 54-58 and all of Examples 4-12. In particular, column 19, lines 37-60 teach microporous carbon because of the carbon can be as small as 0.2 microns in size. With the carbon material being porous, it is inherent that it would transport and retain fuel. To have formed the fuel electrode of '551 of a microporous carbon material as taught in Yamada would have been obvious to one of ordinary skill in this art at the time the invention was made so that the fuel would be transported more easily therethrough. To also have formed the fuel cell of '551 of the configuration of Yamada would also have been obvious because of the ease of flowing fuel to a plurality of stacks all at the same time, with the fuel passing through the middle of each one. The specific type of carbon material is deemed an obvious design

expedient to provide for high conductivity of the fuel cell electrode obvious to one of ordinary skill in this art and because the claimed types of carbon material are notoriously will known in the fuel cell electrode art.

Applicant's arguments have all been considered but are not deemed persuasive. Applicant argues several times that '551 does not disclose a porous material in the fuel reservoir that stores the fuel. The examiner respectfully disagrees. As outlined previously in this action, element 8, the liquid fuel osmosis material, is located in the reservoir 1 and the same is porous so that the fuel may travel therethough by osmosis.

Applicant's only other argument is that the porous material in the reservoir in '551 does not stores a whole portion of the liquid fuel. As set forth previously in this action, material 8 is a liquid fuel osmosis material and holds all of the fuel in the reservoir. This is true because the fuel can be transported to the liquid opening 12 in the reservoir regardless of the angle or tilt of the reservoir-see paragraph 25 in '551.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John S. Maples whose telephone number is 571-272-1287. The examiner can normally be reached on Monday-Friday, 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JSM/2-2-2008

JOHN S. MAPLES
PRIMARY EXAMINER